

**Minolta's Auto-Spot 1°
a totally new concept
in exposure meter design.**



But don't take our word for it.

modern tests

MINOLTA AUTO-SPOT 1° POWER-DRIVEN SPOT METER

MANUFACTURER'S SPECIFICATIONS: Minolta CdS Auto-Spot 1° Exposure Meter. **FEATURES:** ASA indexes 3 to 25,000, apertures f/1 to f/45, shutter speeds 1/2000 to 30 sec.; movie speeds 8-127 sec.; single range motorized dial shows lighted readings; battery test light. **PRICE:** \$209.50 (with pouch case).



This new Minolta meter is unusual in many ways. The first you'll notice is the attention it draws when you use it in public. Next is its gentle whirring as the meter dials the correct exposure

reading. But most unusual is the easy to see, everything in one place indicator dial.

To use the Minolta Auto-Spot 1°, you need only hold it to your eye, dial the ASA—which you can see in the brightly lighted window—press the under-your-finger trigger button, watch the selections of apertures, shutter speeds (or fps for cine), line up. The correct EV number appears under an index line. The light measuring angle of 1° shows as a well-defined circle in a total viewing field of 8°. You can focus the viewing lens down to just over 3 ft.

The design of the Auto-Spot was made with photographers in mind. The handle, which serves as battery case as well for the 9-volt manganese and 1.5-volt AA battery, is ample and comfortable. If you take care not to bang it into passing objects, the 5 $\frac{7}{8}$ in. high, 3 $\frac{3}{4}$ in. wide and 5 $\frac{3}{4}$ in. deep meter swings easily from the wrist strap which screws into a handle base tripod screw hole.

Battery testing is routinely done by holding a tiny button in the back while depressing the press-to-use trigger. A bright red light indicates that you still have at least 6 volts in the 9-volt manganese cell.

After reading the subject, you release the trigger. The last reading is locked into the dial. And if you are merely wondering if the light has changed, point the Auto-Spot at the spot originally measured. Press the trigger and the meter will whirl if there's been a change in light. This is handier than you think because it lets your ears help without reading the scale.

In field tests, the Auto-Spot was a delight. Shooting an almost unlighted play where spots picked out the few characters, the 1° was just right for reading faces or costume details. Conversely the meter was able to reject bright areas outside of the measuring spot with good precision. According to our Aerotronic P-803 exposure meter tester, it could accurately read down to f/1.4 at 1/15 with a film having an ASA index of 400. Accuracy was within $\frac{1}{3}$ f/stop of a known light source. Best of all, the illuminated dial made reading the f/stop and shutter speed both quick and easy—something virtually impossible with non-illuminated scale spot meters. If you do much stage shooting, or ice shows, or circuses, or indoor sports, you'll appreciate this latest entry into the field of versatile, sophisticated, extreme-range meters.

MINOLTA AUTO-SPOT METER

New electrically-powered, highly sophisticated meter that measures 1° "spot" promises more precise exposure control for film and live TV cameramen

In the early 1940's Don Norwood introduced a photographic exposure meter of his own design based on a totally new concept, that of the measurement of the incident light falling upon a subject, as opposed to the basic measurement of light reflected from the subject (which had been the basic working principle of photographic ex-

(TOP) Minolta Auto-Spot 1° exposure meter designed for use with conventional cameras. (BOTTOM) Scale of this model includes calibrations for motion picture frames-per-second readings from 8 to 128.

posure meters produced commercially up until that time).

Norwood's "three-dimensional" incident meter, with its light-gathering hemisphere was so accurate and proved so superior to existing exposure meters that it literally revolutionized the art of exposure control in professional still and motion picture photography. Incident light meters based on Norwood's original design have since become standard equipment throughout the world, particularly for the cinematographer.

In recent years, "spot" meters of varying designs and angles of coverage have been introduced, but have not been widely accepted by studio cinematographers simply because, for the highly controlled conditions under which they usually shoot, the incident light meter fills the bill admirably.

However, with the tremendous current boom in news and documentary filming catalyzed by television, it has become evident that there are special filming situations in which a highly sophisticated spot meter can be a most valuable adjunct to the incident light meter which the cinematographer uses for the bulk of his shooting.

For example, news and documentary cameramen often have to shoot in available light situations in which there is a high degree of contrast between bright and shaded areas. Moreover, they often cannot get close enough to the principle subject to take accurate readings of the light falling upon it. Since the latitude of present-day color emulsions is so narrow, rather precise exposure calculation is necessary in order to make sure that the brightness contrast ratio of the scene falls within the range of the film. In such a case a spot meter with a narrow angle can be used effectively as a brightness contrast meter to read various elements of the scene and arrive at a compromise exposure that will give the best possible rendition to that which is most significant.

Another important usage is in the filming of sporting events (such as

prize fights or ice shows) and theatrical performances where the camera crew works in a darkened arena or auditorium, but the principle subject is in bright flood or spotlight. In such cases, especially if the light varies during the performance, a narrow angle spot meter is practically the only instrument that can insure accurate exposure control.

Estimating exposure with telephoto lenses has always been a bugaboo to the cinematographer, especially when the light where he is shooting is different from that falling upon the subject. Here is another instance in which a spot meter with a narrow angle can be of great value.

Many cinematographers engaged in the filming of TV commercials or scientific films where small objects are to be photographed find it difficult to arrive at an accurate exposure—especially if the object is either very light or very dark. Here, again, a narrow-angle spot meter has been found to be most helpful.

So, it would appear that there are several special situations in which a high-precision, narrow-angle spot meter can save the day for the cinematographer, especially if he is heavily engaged in news or documentary filming. Keeping his needs in mind, as well as those of the still photographer and live TV cameraman, the Minolta Corporation has announced availability of a new cadmium sulphide spot meter equipped with electrically powered, illuminated scales and pushbutton-activated for automatic response to light changes.

Other major innovations in the new meter, named the Minolta Auto-Spot 1°, include through-the-lens viewing, focusing and scale-reading, full-focusing as close as 3.3 feet and a light measuring angle of 1-degree in a total viewing field of 8-degrees.

According to the manufacturer, "the Minolta Auto-Spot 1° represents an entirely new approach to meter design, having been engineered from the outset to meet the special han-



ding requirements of today's fast-moving professional photographer.

Power Scales Are In Viewfinder

The Minolta Auto-Spot 1° Me'er is equipped with an eye-level reflex finder through which the photographer views both his subject and the complete exposure scale. He may thus take continuous readings without taking the Auto-Spot 1° away from his eye.

To obtain exposure readings, the photographer simply presses a button on the front of the Auto-Spot 1° Me'er. When the pushbutton is completely depressed, the scales turn and are automatically illuminated. Scale illumination has no effect on the amount of light striking the CdS cell and thus on exposure readings. So long as the pushbutton remains depressed more than half-way, the power scales in the viewfinder turn automatically and continuously, instantly responding to even the smallest changes in light, subject color or shade.

Once the pushbutton is released, the power scales lock in position. They may also be locked while illuminated.

No Need To Adjust Scales Or Convert Readings

After the Minolta Auto-Spot 1° Me'er is set for the desired film speed

(ASA 3-25,000), no further adjustments are necessary. (ASA settings appear at the bottom of the exposure scale in the viewfinder and are controlled by means of an oversized knurled dial.)

Calibrations on each scale are continuous and there is no need to change from "low" to "high" scales to compensate for light level changes. All readings are taken directly and it is unnecessary to convert settings from one scale to another.

Through-The-Lens Viewing And Focusing

The Auto-Spot 1° viewing system permits the photographer to precisely pinpoint the subject, or any part of the subject, he wishes to measure for exposure. There is no need for guesswork and no possibility of reading an "off-subject" area. The subject is continually visible, without loss of brightness, erect and magnified four times to permit measurement of even the smallest details.

Turning the Auto-Spot 1° lens barrel permits continuous smooth focusing from 3.3 feet to infinity. In addition, the large rubber eyecup turns to focus for individual eyesight. According to Minolta, the "Auto-Spot 1° is the only full-focusing spot meter available today."

MINOLTA AUTO-SPOT 1° EXPOSURE METER TECHNICAL SPECIFICATIONS

TYPE: Cadmium sulphide reflected light meter
LIGHT MEASURING ANGLE: 1°
TOTAL VIEWING FIELD: 8°
FOCUSING: 3.3 feet (1 meter) to infinity; separate focusing rear eyepiece
VIEWING SYSTEM: Through-the-lens viewing and focusing with illuminated scales visible in finder
EXPOSURE VALUE RANGE: 2-18 (up to EV 21 with ASA 100 film and optional ND filter)
ASA RANGE: 3 to 25,000
SHUTTER SPEED RANGE: 1/2000th to 30 seconds
APERTURE RANGE: f/1 to f/45
MOVIE SPEED RANGE: 8 to 128 frames per second
FOOT-LAMBERT RANGE (TV model only): 32 to 5000
POWER SOURCES: 9V Mallory M-1604 or equivalent for CdS cell
 1.5V AA (penlight) for scale and battery check illumination
HEIGHT INCLUDING HANDLE: 5 7/8 inches
SIDE-TO-SIDE: 3 3/4 inches
MINIMUM FRONT-TO-BACK INCLUDING COLLAPSED SHADE: 4 3/8 inches
MAXIMUM FRONT-TO-BACK INCLUDING EXTENDED SHADE: 5 3/4 inches
WEIGHT WITH BATTERIES: 30 ounces
ACCESSORIES SUPPLIED: Leather wrist strap; hard leather carrying case, velvet-lined with shoulder strap



(TOP) Scale of meter designed for live TV lighting measures illumination in foot-lamberts. (BOTTOM) Meter looks similar to model for conventional cameras, but functions differently.

1-Degree Measuring Angle in An 8-Degree Field

The Minolta Auto-Spot 1° has a total field of view of 8-degrees, equivalent to a 300mm telephoto lens on a 35mm camera and said to be the "narrowest available on any spot meter."

Out of the total 8-degree viewing field, light is measured over an angle of 1-degree (equivalent to a 2400mm lens), permitting critical selectivity in measuring highlights and distant subjects without "moving in" for close-up readings. This feature is particularly

MINOLTA AUTO-SPOT METER

valuable in long telephoto and portrait work, since light outside of the 1-degree field of measurement does not affect the sensitivity of the cadmium sulphide cell.

Hermetically Sealed Circuits

To provide operating stability over a wide range of temperature or humidity extremes and maximum resistance to moisture, all transistors, diodes and circuit parts in the Auto-Spot 1° Meter are hermetically sealed. A printed circuit and dye-cast metal housing assure maximum resistance to shock and vibration. Additional protection is provided for the lens by a soft rubber fold-back sunshade.

A bridge circuit and voltage regulating circuit are used for protection against voltage variations, assuring consistent performance with battery output at any point between 6 and 9V.

The cadmium sulphide cell in the Auto-Spot 1° is powered by a 9V

Mallory M-1604 battery or its equivalent. Scales are powered by 1.5V AA (penlight) batteries housed in the built-in hand grip. A red check window lights when batteries are functional; does not light when current falls below 6V.

The Auto-Spot 1° is finished in matte black to minimize glare. Its maximum height including handle is 5 7/8 inches. It measures 3 3/4 inches side-to-side and 5 3/4 inches front-to-back including the extended sunshade.

For Use With Conventional Cameras

The conventional-camera model of the Minolta Auto-Spot 1° Meter is priced at \$209.50, complete with leather wrist strap and soft pouch case.

A Neutral Density Filter is available as an accessory at \$9.95. Extends the sensitivity of the cadmium sulphide cell up to EV 21 with ASA 100 film for shooting under unusually bright conditions.

For Use With Television Cameras

The rapid handling characteristics and narrow measuring angle of the Auto-Spot 1° Meter make it particularly well-suited to fast-paced television work.

Said to be the "only spot meter with an IRE scale," the Auto-Spot 1° TV model facilitates the reproduction of skin tones in proper ratio to the brightest area of the subject and is thus ideal for color work. In addition to the IRE scale, the Auto-Spot 1° TV Meter incorporates a foot-lambert scale ranging from .32 to 5000 and a special exposure compensation indicator. (Conventional-camera scales and provision for setting film speed are not included in the Auto-Spot 1° TV Meter.)

The Auto-Spot 1° TV Meter is priced at \$250.00, inclusive of leather wrist strap, velvet-lined hard leather carrying case and shoulder strap. ■

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The Moore-Neubauer Report

Minolta's Auto-Spot 1° Meter

Powered Exposure Scale And One-Step Readings

The Minolta Corp. has produced a cadmium sulphide spot meter so sensitive it actually measures the change in light on a person blinking his eyes. It's the Minolta Auto-Spot 1°, and it's the most responsive meter we've ever used. It was a particular delight when working with color. Exposures, even when made from a distance, were bang-on every time.

The meter has a number of exciting features. Its eye-level reflex finder lets you view your subject and the complete exposure scale—which adjusts automatically—at the same time, so you can take continuous readings without taking the meter away from

your eye. There are no needles to line up, no dials that need to be adjusted.

When a button on the front of the meter is pressed, the scale turns and is automatically illuminated, but this has no effect on the amount of light striking the CdS cell so there's no worry about getting overexposed readings. Locking the scale in position is accomplished by simply releasing the button. As long as the button is depressed, the scale will turn, automatically responding to even the smallest changes in light, subject color or shade. In one exposure experiment, the scale moved with each blink of a model's eyes! It was a fantastic performance.

ONCE THE ASA is set, all the photographer has to do is view his subject and read his exposure in the finder. The ASA is set by means of an oversized knurled click-stop dial on the front of the meter, and the setting appears at the bottom of the exposure scale in the viewfinder. After that, everything else is automatic. Neither is there a need to change from "low" to "high" scales to compensate for most light level changes. There is a screw-in neutral density filter available for cutting down the effects of bright light if you're caught outside with fast film.

We found that in working in close

situations—about three feet—the subject must be general in form and light in color, or it becomes difficult to read the scale through the viewfinder while still looking at the subject. But this is overcome by taking a reading, locking the scale in position, and then reading the exposure away from the subject.

THE AUTO-SPOT 1° has a total field of view of only 8 degrees, which is like looking through a 300mm lens on a 35mm single-lens reflex camera. We found this to be an ideal feature. Of the total 8-degree viewing field, light is measured over an extremely narrow angle of 1°, which permitted us to measure highlights and distant subjects without having to make close-up readings.

The unit's lens barrel focused smoothly with a short stroke from 3.3 feet to infinity. It has a large rubber eyecup that turns to focus for individual eyesight. The barrel has a built-in soft rubber lens shade.

Finished in matte black to minimize glare, the Auto-Spot 1° is 5 $\frac{7}{8}$ inches in height, 3 $\frac{3}{4}$ inches side-to-side, and 5 $\frac{3}{4}$ inches front to back when the sunshade is extended. It is light in weight, about the same as a normal 35mm

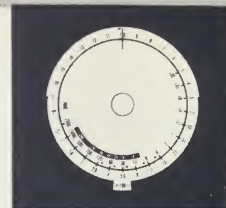
reflex with a normal lens, and was easy to pack. There were no problems using it while wearing glasses, and both of us do.

Sensitivity ranges for the Auto-Spot 1° are: Exposure Value, 2-18; ASA, 3-25,000; shutter speeds, 30 seconds to 1/2000 second; aperture, f1 to f45; movie speeds, 8 to 128 frames per second.

THE UNIT'S CADMIUM sulphide cell is powered by a 9V Mallory M-1604 battery, or its equivalent. Scales are lighted by 1.5V AA penlight batteries housed in the built-in hand grip. There's a red check window light for testing the batteries, and we feel it should be more recessed than it is to make it easier to check in daylight. Either that, or there ought to be a flashing lamp principle incorporated for checking the batteries.

All transistors, diodes and circuit parts are hermetically sealed for maximum protection and operating stability. Bridge and voltage regulating circuits are used to assure consistent performance with battery output at any point between 6V and 9V.

The Minolta Corp. has also produced another version of the Auto-Spot 1° for use in television work. The Auto-Spot 1° TV Model, said to be the only spot meter with an IRE scale, facilitates reproducing skin tones in proper ratio to the brightest area of the subject. Besides the IRE scale, it has a foot-lambert scale ranging from .32 to 5000, and a special exposure compensation indicator.



The fine line circle in the center of the Auto-Spot 1°'s finder corresponds to 1° angle of light measurement. All markings in the finder are clearly defined, and were easily read.



The Auto-Spot 1° TV Model has the same narrow measuring scale of the Auto-Spot 1°. It has an IRE scale, a foot lambert scale of .32 to 5000, exposure compensation indicator.

first look



MINOLTA'S AUTO SPOT 1° meter is the most brilliantly conceived and executed exposure reading instrument on the market today.

At first glance it may look rather cumbersome. It tips the scales at two pounds, but it's well balanced, and the more you compare it with other meters, the less you notice either the size or weight.

What is so different about it? The most obvious difference is the motor-driven exposure dial, visible in the viewfinder. Pick out the subject you want to read in the finder, push the button, the dials light up for easy reading, and the motor spins them to the correct exposure. It's quick, easy, and according to my tests, extremely accurate. And it will react to subtle variations of less than $\frac{1}{6}$ f-stop.

But to me, the most important news is not so much the motor drive but what's behind it. The Minolta meter works on a different principle than other spot meters. Rather than simply operating a meter movement directly from the battery, via the CdS cell, it uses a null-bridge detector that matches the CdS cell against a calibrated variable resistor. What this means is that the accuracy of the readings should not depend nearly so much upon battery condition as is the case with most CdS meters.

The circuitry is quite sophisticated, and of course considerably more extensive than that commonly used in meter circuits. But the advantages of the null detector would seem to make it well worth it.

Of the eight transistors used—more than in many small radios—six are silicon types that are especially stable. And the CdS cell itself is a hermetically sealed unit that is almost impervious to the effects of humidity. And in

addition to the bridge circuit, which is far less sensitive to voltage fluctuations, a regulation circuit has been included to assure absolutely stable operation throughout the full, useful life of the 9-volt battery.

But for all of the fancy circuitry, it is still a CdS meter, and in using the Minolta Auto Spot, you have to allow for that. The cell has typical CdS memory characteristics that are especially noticeable when you take a reading from a fairly dark area immediately after having pointed it at a bright one. In a rather exaggerated trial, I found that it could take as long as 25 seconds for the cell to recover, although normally it would not run that long. Therefore, when dealing with wide brightness ranges, don't take your finger off of the button as soon as the dial stops moving. Wait a couple of seconds to make sure it has stopped drifting. Even in the dim, the dials light up brightly: they are illuminated by a lamp, independently operating on its own standard AA-size battery.

I was greatly impressed with the optics of the new meter.

The entire optical system is really quite unusual, much like that of a catadioptric lens: no beam splitters, no superfluous elements; just two fully silvered mirrors plus the rear reflector. I compared the finder with that of a spot meter I considered to be very good. The Auto Spot's image was not only magnified 4X but far brighter and with considerably more contrast—enough to see details that were indistinguishable with the comparison meter. It is not completely "flareless" as the manufacturer claims, but it does come about as close to it as any spot meter I have ever seen.

And focusing! The Minolta has two focusing adjustments: one of the eyepiece, to sharpen the exposure dials,

the other of the front lens, for focusing on your subject. A smooth $\frac{1}{3}$ turn shifts it all the way from infinity to about three feet.

I found the calibrated useful range of the meter to be more than adequate for most work. It will measure from EV 3-17 with ASA 100 film. The dials in the viewfinder are marked with ASA speeds from 3-2,500, f-stops from 1.0 to 45, shutter speeds from 1/2,000 to 30 sec, movie filming speeds from 8 to 128 fps. Each meter comes with its own individual factory calibration chart (in foot-lamberts).

Some of the other features worth mention include a battery-testing circuit to monitor the condition of the 9-volt battery; a soft, folding rubber hood on the front lens barrel; and a rubber hood on the eyepiece.

If there is anything about the meter that disappointed me, it is the instruction booklet as a whole. Some of the instructions, such as the use of the battery test lamp, are confusing. Too much of it reads like advertising copy rather than really telling you how to use the meter. The booklet also fails to point out that the indicator doesn't have a zero position for low-light situations too dim for a reading. Under such a condition, the EV pointer rests just a little above 3 o'clock, and you can hear the motor trying to rotate the dial further as long as you keep the button pressed. That is the equivalent of zero no matter what EV number the indicator may be pointing to.

These points are minor. What really counts is that the Minolta Auto Spot is a completely new design in meters. With leather pouch case and wrist strap, it costs \$209.50, but there isn't anything else like it at any price. Minolta Corp., 200 Park Ave. S., New York, N.Y. 10003, is the importer.

James S. Forney